Message

From: Walker, Stuart [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=6907CF9284BF4BD5831517C27ECE9C53-SWALKE02]
Sent: 1/31/2020 3:59:07 PM
To: Hays, David C Jr CIV USARMY CENWK (USA) [David.C.Hays@usace.army.mil]; fdolislager@utk.edu
CC: Clements, Julie A CIV (USA) [Julie.A.Clements@usace.army.mil]; Rankins, Jonathan E CIV USARMY CEMVS (USA) [Jonathan.E.Rankins@usace.army.mil]
Subject: RE: BPRG model equation question

I guessed you probably had. I also wanted to walk through it. I sent Fred and email and text but I think he may be out. I may also go back and check emails to see any rationale we discussed when we decided to use a somewhat different approach to this than RESRAD Build.

Stuart Walker
Superfund Remedial program National Radiation Expert
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-----Original Message-----
From: Hays, David C Jr CIV USARMY CENWK (USA) <David.C.Hays@usace.army.mil>
Sent: Friday, January 31, 2020 8:33 AM
To: Walker, Stuart <Walker.Stuart@epa.gov>; fdolislager@utk.edu
Cc: Clements, Julie A CIV (USA) <Julie.A.Clements@usace.army.mil>; Rankins, Jonathan E CIV USARMY CEMVS (USA) <Jonathan.E.Rankins@usace.army.mil>
Subject: RE: BPRG model equation question

Stuart, thank you. I read through the user manual multiple times before asking. The Fsurf factor does make a difference between the models. Pending any additional info from Fred, I would recommend the 3D model as useful for our Hunters Point external exposures evaluation. Working through the ingestion aspects still.

Thanks again.
Dave

-----Original Message-----
From: Walker, Stuart [mailto:Walker.Stuart@epa.gov]
Sent: Thursday, January 30, 2020 5:18 PM
To: Hays, David C Jr CIV USARMY CENWK (USA) <David.C.Hays@usace.army.mil>; fdolislager@utk.edu
Cc: Clements, Julie A CIV (USA) <Julie.A.Clements@usace.army.mil>; Rankins, Jonathan E CIV USARMY CEMVS (USA) <Jonathan.E.Rankins@usace.army.mil>
Subject: [Non-DoD Source] RE: BPRG model equation question

I'll include Fred so he can add to my answer.

The GSFb, or Gamma Shielding Factor was put in the 3-D since we had a couple sites where people considered putting up material to shield the receptors from fixed contamination rather to remediate or replace the building. I remember at one of the NPL sites I think in NJ they had done that in residential basements. It was considered elsewhere, but I don't remember the site names and I think it was decided against. There is a short description in Section 4.3.12 of the User Guide

The Fr-surf which has a longer description in the User Guide is the MCNP analysis using different room sizes, density of building material, location of receptors, and thickness of contamination (gp would be for ground plane) in the 3-D scenario. We did not do such an analysis for room size in the dust scenario. There is a longer description in Section 4.3.10 of the User Guide.

Stuart Walker
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-----Original Message-----
From: Hays, David C Jr CIV USARMY CENWK (USA) <David.C.Hays@usace.army.mil>
Sent: Thursday, January 30, 2020 3:17 PM
To: Walker, Stuart <Walker.Stuart@epa.gov>
Cc: Clements, Julie A CIV (USA) <Julie.A.Clements@usace.army.mil>; Rankins, Jonathan E CIV USARMY CEMVS (USA) <Jonathan.E.Rankins@usace.army.mil>
Subject: BPRG model equation question

Stuart,

In my Hunters Point review efforts I noticed that the indoor worker external risk model equations (and results) differ between the 3D-external and the Dust models. Shouldn't they be the same? I am sure I am missing something here and would appreciate you getting me thinking correctly.

The models external calculations (pCi/cm2) differ by factors GSFb and Frsurfgp. 3D has them and dust external does not. The GSF is not a big deal as not used for HPeval. I assume the horizontal surfaces changes things, just not sure how?

Note, the dust model includes the dissipation term which is adequately explained in the user manual as "For fixed contamination in building materials or on material surfaces in the 3-D equations, the dissipation term is not included as dissipation is not expected." With the default k=0 this term is not used in the dust model so only meaningful difference is the Fsurf, that I can tell anyway. Same issues with residential external model equations.

Appreciate any thoughts/direction.

Thank you
Dave